CLAIMS OF THE INVENTION

I/WE CLAIM:

1.   A system for routing packets containing voice data over a packet-switched network comprising:

5   a first interface having at least one telephone network port and at least one computer network port, the first interface configured to send and receive voice data on the at least one telephone network port and send and receive the packetized data on the at least one computer network port;

a second interface having at least one telephone network port and at least one computer network port, the second interface configured to send and receive voice data on the at least one telephone network port and send and receive the packetized voice data on the at least one computer network port; and

a monitoring system configured to monitor the sending and receiving

15   of data between the first interface and the second interface.

2.   The system of Claim 1, wherein the packet-switched network comprises the Internet.

3.   The system of Claim 1, wherein the at least one telephone network port is configured to communicate with the public switched telephone network.

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4.   The system of Claim 1, wherein the first interface and the second interface include hardware or software configured to perform data compression and decompression.

5.   The system of Claim 1, wherein the first interface and the second

10   interface are configured to convert digitized voice data to packetized data.

6.   The system of Claim 1, wherein the monitoring system is in communication with the first interface and the second interface to

15   monitor the sending and receiving of data.

7.   The system of Claim 1, wherein monitoring comprises analyzing quality of communication between the first interface and the second interface.

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8.   The system of Claim 1, wherein the monitoring system, the first interface and the second interface are configured to re-route the data based on monitoring.

5   9.   A system configured to monitor parameters of a communication session occurring over a packet-switched network comprising:

a collection system configured to obtain data regarding data transfer over said packet-switched network;

a first module, a second module and a third module, each configured

10   to transmit packets to the other respective modules over said packet-switched network and obtain and forward data regarding said transmission to said collection system; and

an analysis system in communication with said collection system, said analysis system having a processor and software configured to perform

15   calculations on said data to monitor said parameters.

10.   The system of Claim 9, wherein said collection system comprises software code.

20   11.   The system of Claim 9, wherein said modules comprise interfaces.

12.   The system of Claim 9, wherein said packets comprise test packets.

13.   The system of Claim 9, further including a transmission system
       configured to utilize results of said monitoring to control
       communication between said first module, said second module and
       said third module.

14.   A method for achieving voice communication via a packet-switched
       network comprising:

       receiving voice data at a first location;

       manipulating the voice data for transmission over a computer network;

       transmitting the manipulated voice data over a computer network via
a first route;

       receiving the manipulated voice data from the computer network at a
second location;

       converting the manipulated voice data to voice data; and

       monitoring the transmission characteristics of the first route.

15. The method of Claim 14, further including, re-routing the manipulated voice data if the monitoring reveals undesirable transmission characteristics.

16. The method of Claim 14, wherein undesirable transmission characteristics comprises delay.

17. The method of Claim 14, wherein voice data comprises analog data.

18. The method of Claim 14, further including monitoring alternate routes.

19. The method of Claim 14, wherein the computer network comprises the Internet.

20. The method of Claim 14, wherein voice data comprises any type data transmitted in the public switched telephone network.

21. The method of Claim 14, wherein manipulating the voice data comprises converting digital voice data into data packets.

22.   The method of Claim 14, wherein converting comprises de-assembling the data packets.

23.   The method of Claim 14, wherein monitoring comprises receiving data from either of the first location or the second location via the computer network regarding the first route.

24.   A method for maintaining desirable transmission characteristics when sending data packets during a communication session occurring between a first location and a second location on a computer network comprising:

transmitting test packets from said first location to said second location

evaluating said test packets to determine the effect on said data packets of transmitting packets from said first location to said second location; and

if said evaluating determines the effect on said data packets is undesirable, sending said data packets to a third location prior to sending said data packets to said second location.

25. The method of Claim 24, wherein said first location, said second location and said third location comprise interfaces.

26. The method of Claim 24, wherein one said effect on said data packets comprises latency.

27. The method of Claim 24, wherein sending said data packets to a third location comprises causing said data packets to take a different route on said computer network.

28. The method of Claim 24, wherein an undesirable effect on said data packets comprises degrading the quality of communication between said first location and said second location to a level that inhibits voice communication.

29.   A method for maintaining desirable transmission characteristics when sending data packets during a communication session occurring between a first location and a second location on a computer network comprising:

transmitting data packets from said first location to said second location

evaluating said data packets to determine the effect on said data packets of transmitting packets from said first location to said second location; and

if said evaluating determines the effect on said data packets is undesirable, sending said data packets to a third location prior to sending said data packets to said second location.

30.   The method of Claim 29, wherein said first location, said second location and said third location comprise interfaces.

31.   The method of Claim 29, wherein one said effect on said data packets comprises latency.

32.   A computer program product comprising a computer useable medium having computer program logic recorded thereon for providing (an) a monitoring and routing system, comprising:

computer program code logic configured to receive input regarding the

5   effect of one or more paths on packet transmission;

computer program code logic configured to analyze the effect of the one or more paths on packet transmission;

computer program code logic configured to determine acceptable paths based on the analysis.

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33.   The computer program product of claim 32, further including computer program code logic configured to transmit data regarding the acceptable paths to an routing device.

15   34.   The computer program product of claim 32, further including computer program code logic configured to provide acceptable paths upon request.

35.   The computer program product of claim 32, wherein the effect

20   comprises delay and bit error rate.

36. The computer program product of claim 32, wherein the paths comprise any route between a first interface and a second interface.

37. An apparatus for interfacing with a communication network to facilitate transfer of data obtained from the communication network over a distance and back to the communication network, the apparatus comprising:

means for monitoring and evaluating paths on a computer network;

means for receiving data at a first location;

means for determining the destination of said data;

means for obtaining input regarding said paths on said computer network to determine a second location; and

means for sending said data to a second location.

38. The apparatus of Claim 37, wherein said apparatus further includes means for re-routing said data to a third location.

39.   The apparatus of Claim 37, wherein means for monitoring comprises means for evaluating transmitted packets to determine the transmission characteristics of one or more paths.

5   40.   The apparatus of Claim 37, further including means for compressing said data and forming said data into packets prior to sending said data to a second location.

41.   The apparatus of Claim 37, further including means for transmitting said data at said second location to a telecommunication network.

42.   A method of determining least-cost-routing over a computer network of a telephone call, the method comprising:

       determining the destination of an incoming call, the incoming call
15   comprising call data;

       determining two or more interfaces to which call data may be routed;

       for at least two interfaces, calculating the fee associated with terminating the call from two or more of said at least two interfaces over non-computer network communication facilities; and

routing said call data to said interface calculated to have the lowest cost of termination over non-computer network communication facilities.

43. The method of Claim 42, wherein said non-computer network communication facilities comprises the public switched telephone network.

44. The method of Claim 42, wherein routing said call comprises packetizing the call data into call packets and transmitting the call packets to said interface calculated to have the lowest cost of termination over a non-computer network communication facilities.

45. The method of Claim 42, wherein determining the destination comprises evaluating the telephone number of the call destination.

46. The method of Claim 42, wherein calculating the fee comprises performing a look-up function to determine the fee associated with completing the call from the interface to the call destination.